

REMARKS

The office action of April 23, 2010, has been carefully considered.

It is noted that claims 1-3 are rejected under 35 U.S.C. 103(a) over the patent to Katagiri in view of the patent to Brahler.

In view of the Examiner's objection to and rejection of the claims, applicant has amended claim 1, and added new claim 4.

It is respectfully submitted that the claims presently on file differ essentially and in an unobvious, highly advantageous manner from the constructions disclosed in the reference.

To better address the differences between the presently claimed invention and the references, applicant has assigned each feature of the claimed invention with a letter, as indicated below:

(A) Actuating device for a lock in a door or hatch of a motor vehicle,

(B) with a lock cylinder (10), which has a lock (15) located a certain axial distance away and a shaft (20) extending between the lock cylinder and the lock;

(C) the shaft transmits (13) a torque (12) to the lock (15) when the lock cylinder (10) is rotated;

(D) where the shaft (20) is flexible (14.1-14.4) in an axial direction (14) of the shaft (20) to compensate for a radial offset (18, 19) between the axis (16) of the lock cylinder (10) and the lock (15),

(E) a driver (31) for actuating the lock (15 or 15' or 25") and/or a connection (32) for the lock cylinder (10) is formed integrally on the shaft (20), wherein

(F) the shaft (20) is made of flexible material (29) and, from two diametrically opposed sides (21, 22), at least one pair of notches (25, 25') recessed in the shaft; wherein

(G) each notch (25, 25') has two facing flank surfaces (26, 26) and a remainder of the cross-section of the shaft (20) is present between a base of the notches (25, 25') of each notch pair; wherein

(H) a plurality of notch pairs are provided so as to extend transversely to the axis (14) and so that only one of the notch pairs is in an axial section of the shaft and so that the flank

surfaces (26, 26') extend in a radial plane relative to the axis (14); wherein

(I) successive notch pairs are separated by intermediate axial pieces (40) of the shaft (20), the intermediate axial pieces (40) having full cross-section that extends across an entire diameter (30) of the shaft without profiling; wherein

(K) a radial section through the shaft (20) in a region of a notch pair has a remainder cross-section formed by a diametric web (27) having a flat profile and a web length (28) that extends across the entire diameter (30) of the shaft (20); whereby

(L) differing radial sections are arranged in alternating succession along the shaft axis (14), the sections including a full shaft cross-section without profiling in a region of one of the intermediate axial pieces (40) of the shaft (20) and a profiled remainder section formed by the diametric web (27) in a region of one of the notch pairs; wherein

(M) the webs (27) produce flex points when a bending load is exerted on the shaft (20), so that, at the flex points, the two flank surfaces (26, 26') of the notches (25, 25') move toward (38, 38') each other on an inner side of the shaft bend (14.1) and away (37, 37') from each other on an outer side of the bend; and wherein

(N) rotation of the shaft (20) transmits torque only via the

diametric webs (27) to the intermediate axial pieces (40) of the shaft that have a full cross-section.

Turning now to the references, Katagiri teaches features (A) through (E), and Brahler teaches features (F) and (G). However, the combination of Katagiri and Brahler does not teach the features (H) through (N).

To better understand the differences between the present invention and the cited references, applicant has attached Exhibit 1, which is a copy of the drawings sheet of Brahler containing Figs. 3 and 6. In these figures applicant has indicated the notch pairs with two opposing arrows. As can be seen, the notches of Brahler extend axially, i.e. parallel to the axis of the shaft. Thus, the flank surfaces of the notches also extend axially, parallel to the axis. The notches do not extend transversely to the axis, as in the presently claimed invention.

Exhibit 3 illustrates the features (K), (L) and (M). The references do not teach a radial section through the shaft in a region of a notch pair that has a remainder cross-section formed by a diametric web having a flat profile and a web length that extends across the entire diameter of the shaft. The references

also do not teach differing radial sections arranged in alternating succession along the shaft axis, which sections include a full shaft cross-section without profiling in a region of one of the intermediate axial pieces of the shaft and a profiled remainder section formed by the diametric web in a region of one of the notch pairs. Still further, the references do not teach webs that produce flex points when a bending load is exerted on the shaft, so that, at the flex points, the two flank surfaces of the notches move toward each other on an inner side of the shaft bend and away from each other on an outer side of the bend.

Exhibit 2 is provided to help illustrate the difference between the presently claimed invention and the references. As can be seen here, the notch pairs are radial to the axis 14 and the flank surfaces extend in a radial plane, as recited in feature (H) mentioned above. This is the opposite of the teachings of Brahler. Fig. 2a shows the flat profile of the web and one of the two flank surfaces of the notch pair, which are indicated by dot high-lighting. Fig. 2c shows the cross-section of one of the intermediate axial pieces 40. There is no teaching of such a construction, which is recited in amended claim 1, by the references.

Additionally, the inventive construction allows rotation of the shaft to transmit torque only via the diametric webs to the intermediate axial pieces of the shaft that have a full cross-section. In Brahler, since the notch pairs extend axially, they are not torsionally rigid and thus they can be twisted which would require a number of axial rotations to take place before any torque could be transmitted. This is contrary to the presently claimed invention.

Thus, in view of the above arguments, a combination of Katagiri and Brahler does not teach the presently claimed invention.

In view of these considerations it is respectfully submitted that the rejection of claims 1-3 under 35 U.S.C. 103(a) over a combination of the above-discussed references is overcome and should be withdrawn.

Reconsideration and allowance of the present application are respectfully requested.

Any additional fees or charges required at this time in

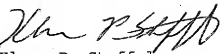
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connection with this application may be charged to Patent and  
Trademark Office Deposit Account No. 02-2275.

Respectfully submitted,

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By

  
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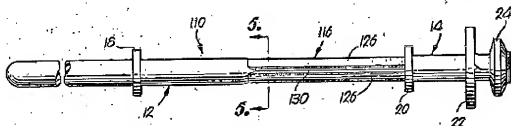
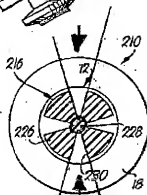
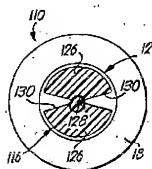
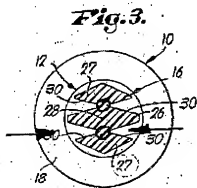
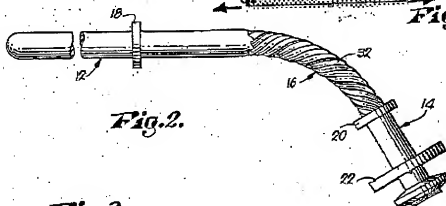
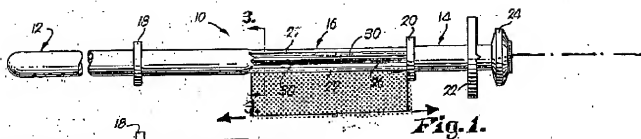
  
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Date: July 23, 2010

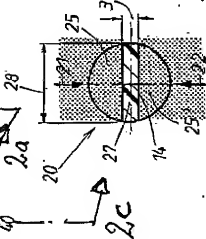
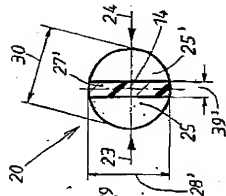
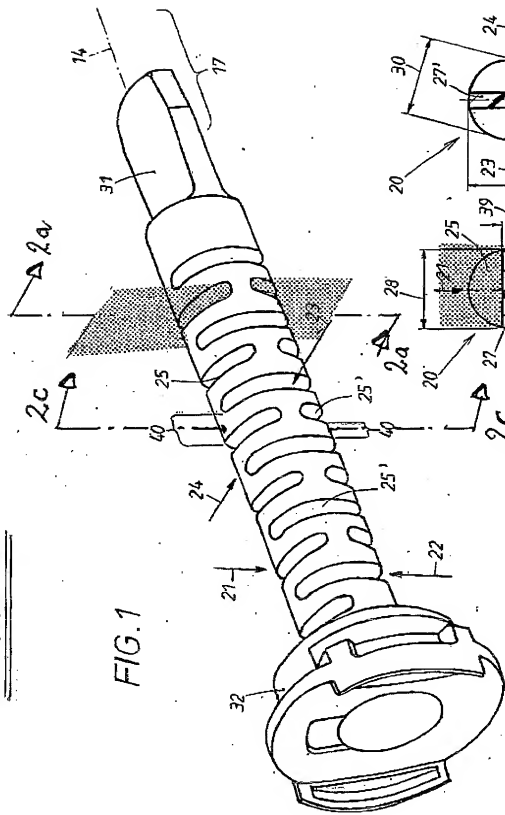
# Exhibit I

PATENTED MAR 11 1975

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# Exhibit 3

